MARINE MAMMAL/VESSEL STRIKE
(MMVS) WORKING GROUP
UMass/Boston – 9:30AM to 4:30 PM
January 13, 2004

MEETING SUMMARY

ACTION ITEM 1: Amy Knowlton (NEAq) will provide copies of the papers discussed as part of her presentation "*An Overview of Information Related to Collisions Between Ships and Whales.*"

ACTION ITEM 2: SBNMS will look into the seasonal aspect of the G. Silber whale database and overlay the SB data on the density grids, and summarize his published strike/mortality data methodology. The Sanctuary will also add its 2002 and 2003 data whale strike to the database.

ACTION ITEM 3: SBNMS will prepare a map showing whale strike locations within and near the Sanctuary, and labeled with season and date.

ACTION ITEM 4: Brad Wellock (MassPort) will provide a summary of data regarding vessel turn-around time, port of call, and the number of tankers arriving and departing MassPort facilities per day.

ACTION ITEM 5: David Wiley (SBNMS) will look into getting Jim Lynch, marine acoustics expert at WHOI, to give the group a demonstration of the vessel noise propagation model he has been working on, which may help the group better understand the amount of noise affecting whales in various contexts.

ACTION ITEM 6: Presenters will forward a summary of their presentations for inclusion in themeeting minutes and copies of their PowerPoint presentations if they were not provided at the meeting. The presentation materials should be forwarded to Just Moller at the SBNMS (just.moller@noaa.gov).

AGREEMENT 1: The members unanimously agreed to assigning a single Alternate per member. The principal member who will notify the WG prior to the meeting the Alternate will attend. They will be added to the information distribution and email list. When the principal member attends a meeting the Alternate can also attend the meeting, but only as a member of the public. They cannot deliberate, but like the public they can raise issues through the principal member. However, an Alternate can provide the WG with specialized knowledge, or present data and information as a Technical Advisor. The Chair noted that it will be the principal member's responsibility to keep the Alternate up to a common level of understanding of the issues being discussed, including agreements the group has reached and recommendations to the SAC.

AGREEMENT 2: The members agreed that vessel strikes to baleen whales are occurring in the SBNMS. There is no information to determine whether or not vessel strikes are occurring to Odontocetes and Pinnipeds within the Sanctuary boundaries. Vessel strikes to these species are either not occurring, or they are not being reported.

AGREEMENT 3: The WG agreed that a sub-group should be formed to identify whale data collection needs and methods, e.g. how to deal with lack of area uniformity, bias, effort, etc. Also, how to get worthwhile data from the whale watch fleet, and how to best use the fleet for data collection and reporting.

RECOMMENDATION:

ECOSYSTEM ALTERATION WORKING GROUP

Working Group Attendees

NAME	WG SEAT and AFFILIATION
Mason Weinrich	Chair, Whale Center of New England
David Wiley	Team Lead, SBNMS
Brad Wellock	MassPort, Shipping
Karen Steuer	National Environmental Trust, Conservation
Erin Heskett	IFAW, Conservation
Regina Silva	IWC, Conservation
Colleen Coogan-Collins	Independent, Conservation
David Gouveia	NMFS Protective Resources, NMFS
Tim Cole	NMFS NEFSC, NMFS
Amy Knowlton	NEAq Right Whale Research Program, Science
Haucke Kite Powell	WHOI, Science
Moria Brown	NEAq Right Whale Researcher, Science
Andy Glynn	General Category Tuna Association, Tuna Fishing
Mike Prew	Captain John Boats, Charter Boats

Technical Advisor(s)

Richard Taylor	Not Present
Alan Michaels	Not Present
Peter Tyack	WHOI
Pat Gerrior	NMFS
David Pierce	Not Present

Working Group Members Not Present

Mike Bartlett	B-Fast Charters, Charter Boats
Rick Nolan	Boston Harbor Cruises, Shipping
Jack Kent	MA Marine Trades Association, Recreational Boating
Bill Eldridge	Peabody Lane Shipping, Shipping

Others Present

Just C. Moller	SBNMS, GIS Research Analyst (Rapporteur)

WELCOME AND INTRODUCTIONS

Mason Weinrich (Chair) opened the meeting at 9:40 AM welcoming members of the Marine Mammal/Vessel Strike working group and thanked them for their support and participation in the Master Plan Review (MPR) process. He then handed the meeting over to David Wiley (SBNMS; Team Lead) who gave a presentation on the MPR process and the roles and responsibilities of the working group members.

Status Of The Management Plan Review

David Wiley (Team Leader) gave a presentation that provided the Marine Mammal/Vessel Strike Working Group (ESA WG) members with a summary of the Stellwagen Bank National Marine Sanctuary (SBNMS) Master Plan Review (MPR) process (see attached flow chart at the end of this document). The National Marine Sanctuary Act (NMSA) requires management plans for all sanctuaries that must be revised every five years. The management plans identify goals and objectives, and create short- long-term strategies for addressing Sanctuary needs. Strategies include setting priorities, management actions, research and education needs, performance measures, etc. for achieving the meaning and intent of the NMSA.

The Working Group (WG) is a body of technical experts and stakeholders who will deliberate on key sanctuary issues derived from scoping meetings related to marine mammal strikes by vessels, and to make recommendations to the Sanctuary Advisory Committee (SAC) concerning those issues. The SBNMS SAC consists of 21 people (members and ex-officios) representing the region's diverse interest groups. The SAC, in turn, makes recommendations to the Sanctuary Superintendent. The goal of the ESA WG is the formulation of an Action Plan to address the issue of marine mammal strikes within the Sanctuary.

The responsibilities of the MME WG members include helping the Sanctuary implement its mandate of ecosystem protection and natural resource management, while allowing compatible human uses. As the only National Marine Sanctuary in New England, the Stellwagen Bank Sanctuary is a model for management and research throughout the region. The members' ultimate objective is the shaping of an Action Plan (AP) that accurately characterizes the issues and problems related to ecosystem alteration, and to identify strategies and activities to address possible solutions ranging from research and education to modified or new regulations.

- The WG members operate under the purview of the Sanctuary Advisory Council. Members were chosen from over 400 nominations representing ~190 individuals on 12 WGs. Working group members represent constituents, and in that capacity serve as conduits for an information exchange from their constituents to WG discussions. The public is invited to participate as observers, but is not permitted to speak directly to the working group. Instead they must convey their concerns through one of the WG members. Individual roles and responsibilities of the various WG representatives include:

- The *Chair*, a member of the SAC, is the WG meeting administrator and facilitator. The Chair solicits the interests and concerns of the WG, assures that all voices are heard, and guides the fairness of the process. If the Chair has an interest that has not been voiced through another member, he must recuse himself from his position as Chair before speaking to his particular interest.
- The *Team Lead* (SBNMS staff) role is to work closely with the chair to guide an equitable process and to serve as logistics support including providing background material, agenda, minutes, etc. He participates in the process as a stakeholder providing advice on the National Marine Sanctuary Program's (NMSP) position, views and policies.
- The *Working Group* is made up of a diverse group of individuals chosen because of their ability to represent diverse points of view, and their knowledge of regional marine resources and management issues. As important is the discussion that occurs between members of the working group and the constituents they represent. The members will be the only voice for their constituents during the WG process.
- *Alternates* for members can be appointed. Appointment of Alternates is a decision of the WG.
- *Technical Advisors* are individuals with expertise related to the marine mammal entanglement issue. Advisors are encouraged to make recommendations and participate in discussions but may not participate in WG decisions.

Working Group will meet once a month for five to six months. Decisions will be made by mutual agreement, and members will work toward decisions as a group with the goal of achieving general agreement. If agreement cannot be reached on a particular issue or problem, the WG has the option of forwarding a suite of recommendations and associated rationales to the SAC, but these might be less influential to the MPR process than unanimous recommendations. If individual members cannot agree on an issue or problem resolution supported by the majority, the member must demonstrate the importance of that issue or problem and provide a written rationale for subsequent consideration by the SAC and/or the Sanctuary Superintendent.

In the event of significant disagreements, the working group will work in consultation with a facilitator.

VESSEL STRIKES OF WHALES: WHAT WE KNOW SO FAR
An Overview of Information Related to Collisions Between Ships and Whales
Presented by Amy Knowlton, New England Aquarium.

Three different types of information were reviewed to provide an overview of what is known about collisions between ships and whales. The first information set includes two papers (Laist et al, 2001; Jensen and Silber, 2004), which describe findings from stranding data and anecdotes of ship/whale collisions from around the world. The data suggest that ship/whale collisions appear to have begun in the late 1800s, occurred infrequently until the 1950s, and increased rapidly between the 1950 and 1970s; fin whales and right whales are the species most frequently hit, but collisions with humpback, gray, and sperm whales can be common in some areas; juveniles and calves are more likely than adults to be hit. In addition, all types of motorized vessels may hit and seriously injure whales, but most serious and lethal collisions involve large vessels 80 m. In most cases vessel operators do not see the whales before they are hit or they see them only a few moments before the collision; and serious or lethal injuries to whales appear to be infrequent below vessel speeds 13 knots and rare at speeds below 10 knots.

The second information set is the hydrodynamics work, which simulates the hydrodynamic effects of large ships passing right whales to determine if whales are exposed to additional danger from these hydrodynamic forces. The data show that a passive whale is not in increased danger from a passing ship because the whale is akin to a styrofoam cup – it gets pushed away from bow before getting drawn in towards ship. But a whale which "appears" after the initial positive sway force from the ship has passed can be drawn into a ship even if it is outside the beam of certain ships, and is thus in increased danger from a ship in these situations. The simulations also showed that collisions with a passive whale tend to occur towards the bow of the ship and collisions with an 'appearing' whale tend to occur along the length of the vessel with some situations bringing the whale close to the propeller. A passive whale, which is submerged under a ship, is in increasing danger of collision with either the ship or the sea floor as water depth decreases. The shape of the hull, plus the size of the vessel, plus the size of the propeller and the vessels speed, equals the amount of force generated around the vessel. The suction at the stern is caused by water 'filling in' behind the vessel, which can 'suck' a whale into the propeller.

The third information set is the right whale mortality database. Cause of death determination comes primarily from necropsied animals though in some cases, a ship strike determination can be made from a floating carcass if the propeller cuts are found on the dorsal aspect of the carcass. Between 1970 and the present, 60 right whale carcasses have been detected. 21 of those animals died from ship strike (including 5 calves. 13 of the carcasses bore external evidence of a strike and 8 bore no external evidence of strike (internal evidence can include hematoma and broken bones). Of the remaining carcasses, 6 died from entanglement, 17 were adults/juveniles of unknown cause, and 16 were calves that likely died of natural causes. The data to date indicates that the most common vessel strikes involve Fin whales and Right whales, then Humpback whales, and least common are Sei and Minke whales.

Comments: A number of members asked questions in response to the presented data:

- Is there a way to account for observer bias, e.g. higher reporting of vessel strikes in some areas? Some areas that are empty of data may actually include strikes, but are unrecorded since these areas are not frequented by vessels that typically report strikes, e.g. whale watching vessels.
- Is there a way to weigh the data by speed category? Yes, for those categories where speed data is available. For example, the maximum speed for cargo vessels is published.

- Referring to the Average Maximum Speed graph in the presentation, the question was raised if there is an equivalent graph that can be created that shows 'average vessel tonnage.' Yes.

Concern: The Short Sea Initiative is a government effort to look into the feasibility of increasing coastwise ship traffic along the U.S. East Coast as an approach to alleviating highway truck traffic. This is an issue that should be kept track of as it may impact the Sanctuary in the future.

Comment: B. Wellock (MassPort) noted that VLCC (very large) vessels do not travel coastwise. They are coming from Northern Europe and other international locations. Many smaller tankers and commercial vessels travel along the coast between Delaware and the oil supply pipeline in Maine.

WHALE RESPONSE TO VESSELS: WHAT WE KNOW AND WHAT WE CAN COUNT ON
Presented by Peter Tyack, Senior Scientist, WHOI.

(Add Presenter's Summary)

Different vessels can produce very different kinds of sound. Peter presented his findings that whales appear to become de-sensitized to high ambient noise levels produced by man-made sources. He studies whales in the Artic region with relatively low man-made noise levels and compared those results with those in areas with constant noise. His results showed what appeared to be an accommodation or de-sensitization of high noise levels in certain areas (habituation to sounds). It is not a detection issue. The whales hear the sound of approaching vessels. Rather, it is an issue of life style in a given environment. It is a whale's preference to get out of the way, but it will 'ignore' vessel sounds in areas of high vessel traffic in order to meet basic survival requirements, such as, feeding, mating, etc. In the Artic, where the whales were not habituated to vessel noise, they demonstrated avoidance behavior by turning away from the vessel (horizontal plane), or diving vertical plane). His research also tested the reaction of whales to different sound modulations and frequencies to determine if whales can recognize 'alarm' sounds that could possible be used on vessels to warn whales of their approach.

He also discussed possible avoidance response mechanisms in areas of high potential interaction between whales and large vessels, and for vessels of a category that historically have been involved in whale strikes. He suggested that if warning devices were to be required on vessels they should be located on the bow with the cone of sound directed forward to give a whale time to react. Although the reaction to certain sounds looked promising, the issue of habituation still needs to be addressed. See related data in Cox et.al. 2000. Journal of Cetacean Research and Management, 3:81-86.

VESSEL STRIKES IN THE SBNMS
Presented by David Wiley, Research Coordinator, SBNMS.

(Add Presenter's Summary)

Comment: Given the nature of vessel strikes, it is difficult to accurately pinpoint the location where the strike occurred; reported location is typically not the strike location. The degree to which whale mortality is caused by human activity is measurable based on visual evidence of carcasses, but there is an urgent need to establish standardized necropsy methodologies for dead whales to accurately determine cause of death.

The WG also discussed the issue of how to deal with missing and biased data. Bias in existing databases is due to the reporting source, e.g. whale watching boats that frequent particular areas. Area coverage is currently not uniform leading to 'gaps' in the data. Some areas are underrepresented. Vessel strikes may actually be distributed evenly over a longer period of time.

Q. Are whales the only species that are hit by vessels?

A. Predominantly! Although approximately 15 species of mammals are known to have visited the Sanctuary at one time or another, there is only one report of a non-whale species being hit by a vessel.

The group briefly discussed the feasibility of moving the shipping lanes to and from the Port of Boston.

Q. Is the vessel traffic separation zone that crosses SB mandated, i.e. is the location fixed by law?

A. The shipping lanes are recommended, not mandated. Their current location was chosen as the most efficient line from Cape Cod to the Port of Boston. It was not on navigation charts until relatively recently when the International Maritime Organization approved their location.

DISTRIBUTION OF WHALES IN THE SBNMS IN RELATION TO VESSEL STRIKE ISSUES
Presented by David Wiley, Research Coordinator, SBNMS.

(Add Presenter's Summary)

INDUSTRY UPDATES: CURRENT USE LEVELS, TRENDS AND ISSUES
Presented by Industry Representatives

- Brad Wellock (MassPort): Boston is the largest port on the U.S. East Coast north of NY/NJ. It is a 'direct call' port, meaning that vessels arriving in Boston from foreign destinations may not continue on to other US ports. 98% are foreign flagged vessels. Pilots typically meet the vessels at the 'Precautionary Area' at the end of the traffic separation zone at the entrance to Boston Harbor. Cruise ships has been a growing part of the ship traffic to and from Boston from May through October. The effective depth of the main shipping channel into Boston is 37 feet. The CG requires a 2 to 3 foot safety clearance margin between the vessel bottom and the floor of the channel, depending on the size of vessel. Vessel traffic tends to be tidal dependent resulting in 'pulses' of traffic around the time of high tide.

(Add Presenter's Summary)

- Andy Glynn (General Category – Tuna Fishing): There has historically been a lot of interaction between tuna boats and whales. Whales and tuna feed on the same species (Sand Lance, Herring). Generally, if there are not tuna there are not whales! The tuna industry is heavily dependent on Sand Lance. He is not aware of any tuna vessels striking whales, and he is not sure what the industry can do to help prevent vessel strikes of whales.

(Add Presenter's Summary)

- Regina Asmutis (IWC): Whale watch operations – Twenty (20) operations from 19 communities that gross about $24 million in annual revenue, 45% from MA. Current whale watch vessel statistics – Mean length (approximately 100'), Mean cruising speed (approximately 20 kts), draft (5-6'), propeller size (30-38"). Some of the fastest vessels (30-40kts) are propelled by water jets.

DISCUSSION OF TRENDS IN WHALE WATCH VESSEL SPEEDS

NEXT STEPS

Preliminary Goal Statement

A draft of a proposed goal statement for the MM Vessel Strike Working Group will be presented for discussion at the February meeting.

Data Needs

Tentative Meeting Schedule

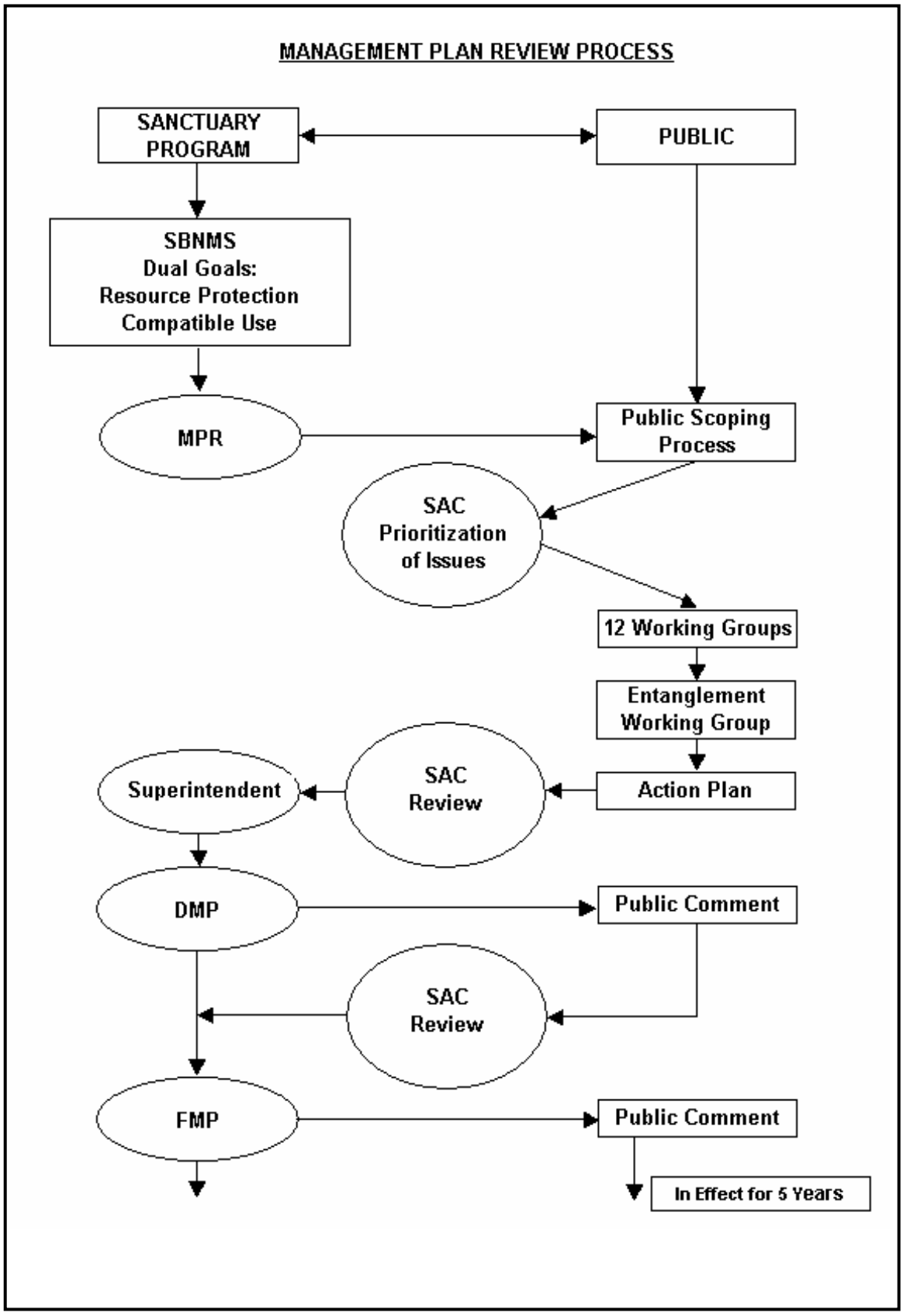
Mtg #2: Wednesday, February 9, Location: SBNMS
Mtg #3: Tuesday, March 9 Location: North of Boston
Mtg #4: Tuesday, April 6 Location: Boston
Mtg #5: Tuesday, May 4. Location: TBD.

An additional meeting may be scheduled if deemed necessary as discussions progress.

Tentative Agenda Outline for Future Meetings

1. Finalize goal statement.
2. Presentation of terrestrial strategies for dealing with transportation and wildlife conflicts.
3. Additional industry reports, e.g. high speed passenger, commercial shipping, etc.
4. Prepare matrices of potential risks and solutions: what can be agreed to, then prioritized, by vessel type.
5. Present the outline of an action plan.

.


MANAGEMENT PLAN REVIEW PROCESS
SANCTUARY PROGRAM
PUBLIC
SBNMS Dual Goals: Resource Protection Compatible Use
MPR
Public Scoping Process
SAC Prioritization of Issues
12 Working Groups
Entanglement Working Group
Superintendent
SAC Review
Action Plan
DMP
Public Comment
SAC Review
FMP
Public Comment
In Effect for 5 Years

Gerry E. Studds **Stellwagen Bank National Marine Sanctuary**
Management Plan Review

Vessel Strike Working Group – Draft Agenda

Date: 13 January 2004
Location: 11th Floor, Healey Library, University of Massachusetts at Boston

TIME	TOPICS AND OBJECTIVES
9:30-9:45	•**Welcome & Introductions** -Round Robin (Name, Affiliation, Background, and Interests) **Discussion Leader**: Mason Weinrich
9:45-10:30	**Why Are We Here** - Status of the Management Plan Review - The Working Group Process - Mechanics, Responsibilities, and Decision Making - Purpose and Structure of a Action Plan - How Does the Action Plan Fit into the Draft Management Plan? **Objective**: Familiarize working group members with the management plan review process and the how's and why's of the working group. **Discussion Leader**: Dave Wiley
10:30-11:15	**Vessel Strikes of Whales: What We Know So Far** **Presenter:** Amy Knowlton, New England Aquarium
11:15-12:00	• **Whale Responses To Vessels – What do we know, what can we count on?** **Presenter**: TBD
12:00-12:20	• **Vessel Strikes in the SBNMS** **Presenter:** Dave Wiley, SBNMS
12:20-12:45	• **Distribution of Whales in the SBNMS in relation to the Vessel Strike Issue** **Presenter:** Dave Wiley, SBNMS
12:45-1:30	• **LUNCH**
1:30-3:15	• **Industry Updates: Current Use Levels, Trends, and Issues (15 minute presentations)** **Presenters:** Bill Eldridge, Peabody Lane Shipping, Commercial Shipping Brad Wellock, MassPort, Shipping in Boston Harbor Rick Nolan, Boston Harbor Crusies, High speed Passenger Transportation Andy Glynn, General Category Tuna Assoc., Tuna Fishing Mike Bartlett, B-Fast Charters, Charter Boat Traffic Mike Prew, Captain John Boats, Commercial Whale-Watching
3:15--3:30	• **Trends in Whale Watch Vessel Speeds** **Discussion Leader:** Dave Wiley, SBNMS
3:30-4:30	•**Discussion: Next Steps** - Data Needs - Next Steps

	- Meeting Schedule/Timeline - Agenda for Next Meeting **Discussion Leader: Mason Weinrich**